IDEM's Surface Water Quality Assessment Program

Biological Assemblage Stressor ID Program

Program Objective

The Biological Assemblage Stressor ID Program objective is to conduct intensive targeted studies on watersheds having previously identified biological stream impairments. These studies target water bodies on the 303(d) list of impaired waters as well as impairments referred by IDEM's Probabilistic Fish Community Assessment Program. Impaired watersheds are assessed following the stressor ID methods of Morris et al. (2006). This model applies an intensive targeted watershed design providing a unified physical, chemical and biological dataset that can be used in making scientifically valid and informed watershed management decisions. Cause and source identification is a basic component of USEPA 305(b) guidance which encourages states to document impaired problems as part of the assessment process. The number and type of studies that can be conducted each field season is limited due to staffing levels.

Examples of stressors that have been identified to date to cause biological assemblage degradation are: ammonia, chloride and zinc. Potential sources of these stressors have been: leaking septic systems and municipal waste water treatment plants.

Program Participants

The Biological Assemblage Stressor ID Program is carried out through the cooperative efforts of the Biological Studies and Surveys Section, Assessment Branch.

Program Description

Media:	Surface Water; rivers and streams
Study Area:	Statewide rotating basins (Patoka and West Fork White River Basins 2006)
Site Selection Type:	Targeted sites
Sampling Sites:	30-80 per study unit depending on watershed complexity
Sampling Frequency:	Single sampling of all sites within a three to six day period
Data Collected:	Fish assemblages, habitat, land use and water chemistry.

Program Products

- Accurately depict the extent of the biologically impaired condition in the identified watershed.
- Apply IDEM's stressor ID model following the methodologies outlined in Morris et al. (2006).
- Memorandum or Report including all information gathered results of the study and recommendations for the watershed studied.

Technical Notes

All Biological Assemblage Stressor ID studies will adhere to the Assessment Branch Quality Assurance Project Plan and Standard Operating Procedure.

Parameters to be determined by the requirements of each study.

Literature Cited

Morris, C.C., Simon, T.P., and Newhouse, S.A**.** 2006. A Local-Scale *in situ* Approach for Stressor Identification for Biologically Impaired Aquatic Systems. *Archives of Environmental Contamination and Toxicology* (OnlineFirst)

Contact Information

Charles C. Morris, Environmental Manager
Indiana Department of Environmental Management
Office of Water Quality – Assessment Branch
Biological Studies Section
100 North Senate Avenue
MC65-40-2 Shadeland
Indianapolis, IN 46204-2251
Phone: (317) 308-3119
Fax: (317) 308-3219
E-mail: cmorris@idem.IN.gov

IDEM Information: (317) 232-8603 or 800-451-6027 800-743-3333(TDD) toll-free for Indiana residents www.IN.gov/idem/water/ **Report Environmental Emergencies**: (888) 233-7745 **Confidential Technical Assistance:** (800) 988-7901 **Pollution Complaint:** www.IN.gov/idem/pollutioncomplaints/ **Questions and Comments:** www.IN.gov/idem/contact/questions.html	***For More Information on IDEM's Office of Water Quality…*** **Assessment Branch** (Surface water quality monitoring: rivers and streams, lakes, water quality standards) Shadeland Office, Indianapolis (317) 308-3173 **Compliance Branch** (Compliance and inspections, data and information services, wastewater certification and continuing education) Indiana Government Center North, Indianapolis (317) 233-2545 **Drinking Water Branch** (Public water supply supervision and ground water protection) Shadeland Office, Indianapolis (317) 308-3308 **Permitting Branch** (Facilities Construction & Engineering Support, Industrial & municipal permits, modeling, and wet weather) Indiana Government Center North, Indianapolis (317) 232-8760 **Watershed Planning Branch** (Rules development, wetlands, TMDL, watershed management) Indiana Government Center North, Indianapolis (317) 233-8488